

1 - 16

WATER REPORT

1978



IMPERIAL IRRIGATION DISTRICT
J. R. WILSON
Manager, Water Department

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WATER DEPARTMENT
OPERATIONS AND ORGANIZATION

Water is diverted from the Colorado River at Imperial Dam through the District's All-American Canal headworks and desilting basins, thence into the All-American Canal for transporting to Imperial, Yuma and Coachella Valleys. Yuma Project water is diverted from the All-American Canal at Siphon Drop. Coachella's water is diverted at Drop No. 1 to the Coachella Branch of the All-American Canal for conveyance to 6-A Check, for delivery to Coachella Valley County Water District. All water passing below Drop No. 1 in the All-American Canal is for use by Imperial Irrigation District.

The District's gravity-flow canal and drainage system serves an area of 502,305 acres of irrigated farm land. The total gross area within the District's boundaries is 1,062,290 acres, including undeveloped area; cities, towns, airports, feed lots, etc., area below the -230 contour Salton Sea Reserve Boundary and area covered by Salton Sea; and area in canals, drains, rivers, and railroads.

Water Department's responsibilities include operation and maintenance of the All-American Canal headworks and desilting basins at Imperial Dam, 80 miles of All-American Canal, 49 miles of the Coachella Branch of the All-American Canal, 3 miles of New Briar Canal, a 1,627 mile network of other main canals and laterals, 52 miles of drains in All-American Canal Section and 1,402 miles of main and lateral drains.

Water conveyed in the District's canal system serves agricultural, industrial and domestic purposes. All cities and towns in Imperial Valley receive raw water supplied from District's canals.

Department organization includes Irrigation and Drainage Sections, All-American Canal Section, Water Control Section, Civil Engineering Section, Drainage Construction and Maintenance Section and Heavy Equipment Operations Section.

Number of Employees in Water Department - December 31, 1978

Water Administration	6
Water Engineering	24
Water Control	56
Heavy Equipment Operators Pool	63
Drainage Construction, Maintenance and Design	37
Irrigation and Drainage Divisions	206
All-American Canal	<u>40</u>
Total	432

Soil Conservation Service District

The local Soil Conservation Service District operates under a memorandum of understanding between the District and the U. S. Department of Agriculture, and a close liaison is maintained between the agencies. Engineering information produced by one agency is available to the other organization.

The Imperial Irrigation District Board of Directors also serve as Directors for the Soil Conservation Service District and sets policy for the Soil Conservation Service operations in Imperial Valley.

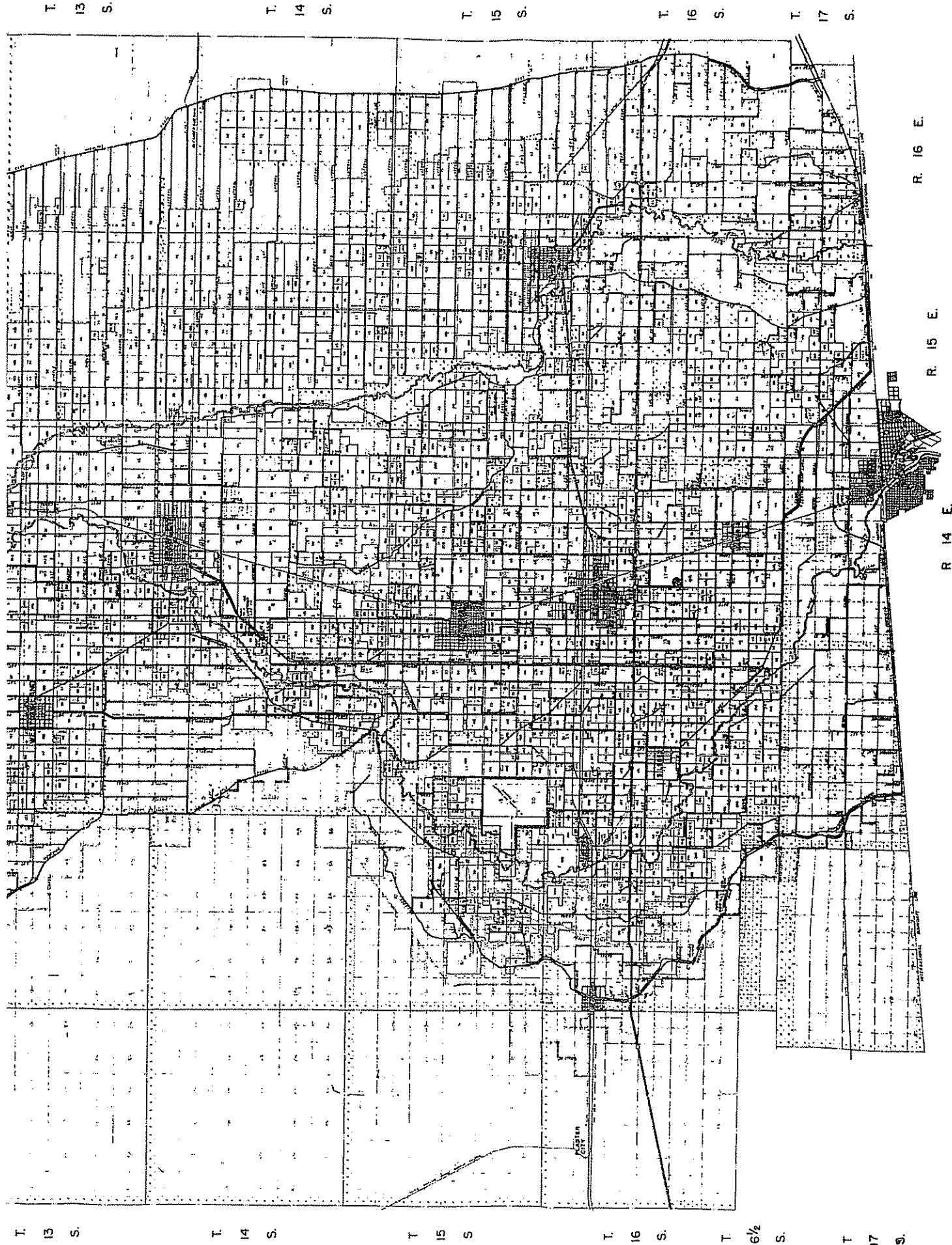
Cars and Trucks Assigned to Water Department Sections, Units and Divisions

Manager, Water Department	1
Assistant Manager, Water Department	1
Engineering Section	5
Engineering - Boat Trailer	1
Water Control Section	29
Drainage Construction	24
Drainage Construction - Utility Flatbed Trailers	3
Equipment Operations	45
Equipment Operations - Flatbed Trailer	1
River Division	11
River Division - Dump Truck	1
River Division - Tiltbed Trailer	1
Western Division	11
Western Division - Boat Trailer	1
Western Division - Pump Trailer	1
Western Division - Trailer (Debris Removal)	1
Western Division - Flatbed Trailer	1
Superintendent, General, Irrigation & Drainage	1
Holtville Division	23
El Centro-Calexico Division	26
El Centro-Calexico Division - Trailer	1
Imperial Division	20
Brawley Division	19
Westmorland Division	21
Westmorland Division - Tiltbed Trailer	1
Calipatria Division	19

Heavy Equipment Assigned to the Water Department

15-B Dragline	1
22-B Dragline	9
22-B Motor Cranes	4
38-B Dragline	1
Bantam Teleskoops	4
D-7 Bulldozers	13
Motor Graders	4
Backhoes	7
Backhoe - Crawler Mounted	1
Skiploader	1
Sprinkler Trucks	5
Lube Trucks	2
Wheel Tractors	13
Dump Trucks	7
Boom Truck	9
Incorporator	1

MAPS OF
IRRIGATION AND DRAINAGE SYSTEMS



M E X / C O

IMPERIAL IRRIGATION DISTRICT
IMPERIAL COUNTY, CALIFORNIA
DRAINAGE SYSTEM

JANUARY, 1979

D.A. THIGOOD
GENERAL MANAGER

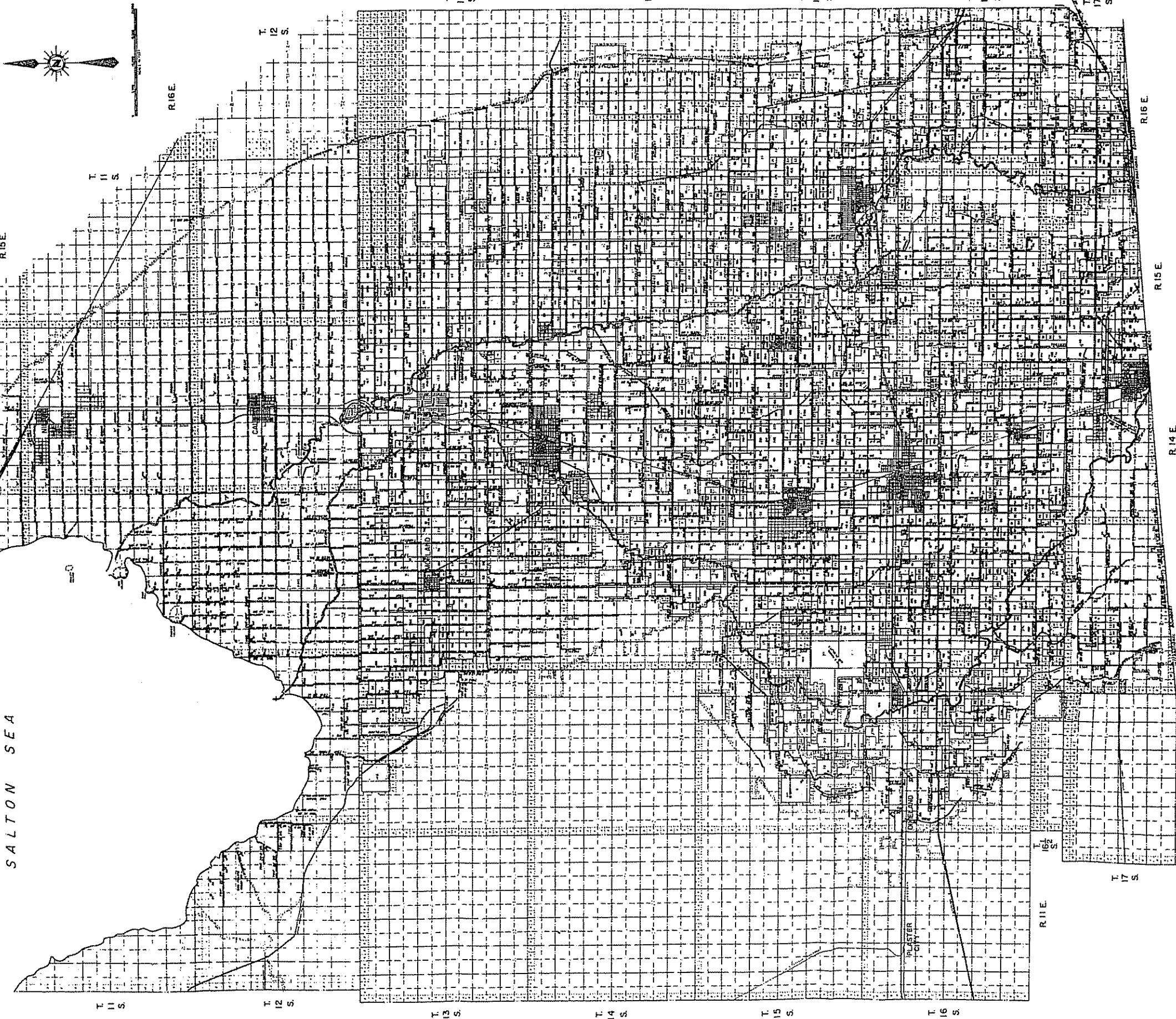
IMPERIAL UNIT

JANUARY, 1979

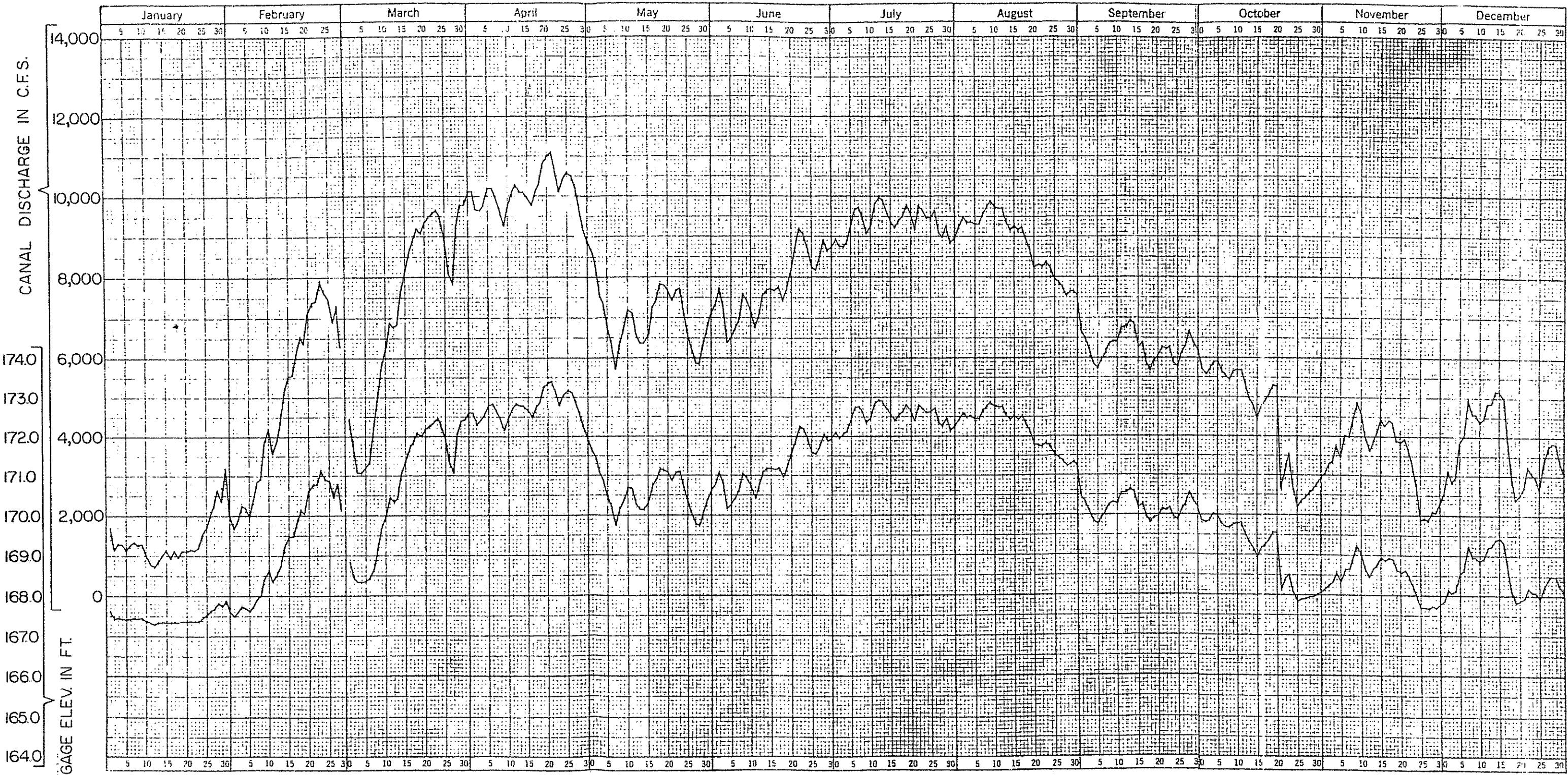
D.A. THIGOOD
GENERAL MANAGER

LEGEND

- HIGHWAYS
- RAILROADS
- RIVERS
- DRAINS
- LATERAL DRAINS
- CONCRETE PIPE DRAINS
- CAST IRON DRAINS
- SUMP PUMPS
- SALTON SEA PUMPS
- OPEN WELL & DRAIN OUTLET PUMPS
- IMPERIAL UNIT BOUNDARY
- TOWNSHIP & RANGE LINES
- SECTION LINES
- E SECTION LINES
- TRACT LINES
- TRACT NUMBERS
- LOT LINES
- LOT NUMBERS



ALL AMERICAN CANAL AT STATION 60 - 1978



GROSS ACREAGE, CANAL AND DRAIN MILEAGE
AND INVENTORY OF STRUCTURES

GROSS ACREAGE OF IMPERIAL IRRIGATION DISTRICT
WITHIN THE A.A.C. SERVICE AREA BOUNDARIES

1. Imperial Unit

Acreage Included in Imperial Unit as of 12-31-78	626 614
Included August 10, 1967, (No Water Rights)	<u>63 933</u>
 Total Acreage Included in Imperial Unit	690 547
 Acreage Within Imperial Unit not Included	3 874
 Total Gross Acreage - Imperial Unit	694 421

2. East Mesa Unit

Acreage Included in East Mesa Unit as of 12-31-78	201 916
Acreage Within East Mesa Unit not Included	<u>18 727</u>
 Total Gross Acreage - East Mesa Unit	220 643

3. West Mesa Unit

Acreage Included in West Mesa Unit as of 12-31-78	67 146
Acreage Within West Mesa Unit not Included	<u>59 130</u>
 Total Gross Acreage - West Mesa Unit	126 276

4. Pilot Knob Unit

Acreage Included in Pilot Knob Unit as of 12-31-78	15 478
Acreage Within Pilot Knob Unit not Included	<u>5 472</u>
 Total Gross Acreage - Pilot Knob Unit	<u>20 950</u>

Total	1 062 290
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Total Acreage Included - All Units	975 087
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Total Acreage not Included - All Units	<u>87 203</u>
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 TOTAL GROSS ACREAGE WITHIN A.A.C. SERVICE AREA BOUNDARIES	1 062 290
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SALTON SEA AREA

The approximate area covered by that portion of Salton Sea lying within the boundary of the I.I.D. on 1-1-79	101 800 Acres
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The approximate area within the I.I.D. boundaries lying above the January 1, 1979, shore line of Salton Sea and below the -230 Salton Sea Reserve Boundary	3 600 Acres
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CANAL AND DRAIN MILEAGE AS OF DECEMBER 31, 1978

	<u>Total Miles</u>	<u>Miles Earth Section</u>	<u>Miles Concrete Lined</u>	<u>Miles Pipelined</u>
All-American Canal - Canals	1311.17	128.57	2.60	0.00
All-American Canal - Drains	51.64	37.51	0.00	14.13
Main Canals	153.31	147.56	5.75	0.00
Lateral Canals	1 473.35	754.85	710.25	8.25
Drains	<u>1 401.94</u>	<u>1 308.89</u>	<u>0.40</u>	<u>92.65</u>
Totals	3 211.41	2 377.38	719.00	115.03

MAIN CANAL MILEAGE AS OF DECEMBER 31, 1978
BY DIVISIONS

Divisions	Total Miles	Miles Earth Section	% Earth Section	Miles Concrete Lined	% Concrete Lined		Miles Pipelined	% Pipelined
					Miles	Pipelined		
Holtville	16.60	16.60	100.00	0	0	0	0	0
El Centro-Calexico	37.03	32.83	88.66	4.20	11.34	0	0	0
Imperial	27.00	27.00	100.00	0	0	0	0	0
Brawley	12.94	12.94	100.00	0	0	0	0	0
Westmorland	19.20	19.20	100.00	0	0	0	0	0
Calipatria	<u>40.54</u>	<u>38.99</u>	<u>96.18</u>	<u>1.55</u>	<u>3.82</u>	<u>0</u>	<u>0</u>	<u>0</u>
Division Totals	153.31	147.56	96.25	5.75	3.75	0	0	0
All-American Canal	<u>131.17</u>	<u>128.57</u>	<u>98.02</u>	<u>2.60</u>	<u>1.98</u>	<u>0</u>	<u>0</u>	<u>0</u>
Grand Total	284.48	276.13	97.06	8.35	2.94	0	0	0

LATERAL CANAL MILEAGE AS OF DECEMBER 31, 1978
BY DIVISIONS

Divisions	Total Miles	Miles Earth Section		Miles Concrete Lined		% Concrete Lined	Miles Pipelined	% Pipelined
		% Earth Section	Miles Concrete Lined	% Concrete Lined	Miles Pipelined			
Holtville	295.19	85.87	29.09	208.96	70.79	0.36	0.12	
El Centro-Calexico	229.58	138.13	60.17	90.95	39.61	0.50	0.22	
Imperial	203.64	101.16	49.68	101.98	50.07	0.50	0.25	
Brawley	243.90	136.82	56.10	101.14	41.46	5.94	2.44	
Westmorland	199.83	81.55	40.81	118.28	59.19	0.00	0.00	
Calipatria	<u>301.21</u>	<u>211.32</u>	<u>70.16</u>	<u>88.94</u>	<u>29.53</u>	<u>0.95</u>	<u>0.31</u>	
Totals	1 473.35	754.85	51.23	710.25	48.21	8.25	0.56	

DRAIN MILEAGE AS OF DECEMBER 31, 1978
BY DIVISIONS

Division	Total Miles	Miles Earth Section	% Earth Section	Miles Concrete Lined	% Concrete Lined		Miles Pipelined	% Pipelined
					Miles Concrete Lined	% Concrete Lined		
Holtville	115.03	94.50	82.15	0.40	0.35	20.13	17.50	
El Centro-Calexico	95.64	89.15	93.21	0.00	0.00	6.49	6.79	
Imperial	64.90	62.35	96.07	0.00	0.00	2.55	3.93	
Brawley	213.93	212.53	99.35	0.00	0.00	1.40	0.65	
Westmorland	138.64	135.84	97.98	0.00	0.00	2.80	2.02	
Calipatria	257.46	237.50	92.25	0.00	0.00	19.96	7.75	
Division Totals	885.60	831.87	93.97	0.40	0.04	53.33	5.99	
Drainage	516.34	477.02	92.49	0.00	0.00	39.32	7.51	
All-American	51.64	37.51	72.64	0.00	0.00	14.13	27.36	
Grand Total	1 453.58	1 346.40	92.63	0.40	0.03	106.78	7.35	

INVENTORY OF STRUCTURES
December 31, 1978

<u>Main Canals - Divisions</u>	<u>Concrete</u>	<u>Rubble</u>	<u>Wood</u>	<u>Others</u>	<u>Total</u>
Deliveries	190	13	2	-	20
Checks	57	2	-	-	5
Lateral Headings	134	8	-	-	14
Control Structures	97	4	1	-	10
Bridges	5	-	22	4	3
Siphons	24	1	-	-	2
Moss Pipes	5	-	-	2	
Storm Spillways	4	4	-	-	
Flumes	-	-	-	1	
 Total Divisions	 516	 32	 25	 7	 58
All-American Canal	145	-	-	-	14
 Total Main Canals	 661	 32	 25	 7	 72
 <u>Lateral Canals - Divisions</u>					
Deliveries	5 206	129	29	-	5 36
Checks	3 158	164	20	-	3 34
Lateral Headings	325	24	1	-	35
Control Structures	710	49	21	2	78
Bridges	26	4	31	1	6
Siphons	125	2	-	4	13
Moss Pipes	124	-	7	1	13
Flumes	1	-	-	-	
Storm Spillways	31	4	-	-	3
 Total Lateral Canals	 9 706	 376	 109	 8	 10 19
 <u>Drains</u>					
Control Structures	391	9	12	2	41
Bridges	2	-	33	-	3
Siphons	1 283	11	1	40	1 33
Flumes	2	-	36	2	4
Outlets	228	-	-	-	22
Spillways	25	-	-	-	2
Maintenance Crossings	353	-	-	-	35
Deliveries	1	-	-	-	
 Total Drains	 2 285	 20	 82	 44	 2 43

LOCATION OF CONTROL DROPS IN ALAMO AND NEW RIVERS

LOCATION OF CONTROL DROPS IN ALAMO RIVER

Alamo River Drop No. 2, near the center of the N. E. 1/4 of Section 12, 12-13, was installed in 1959.

Alamo River Drop No. 3, in the northwest corner of Section 29, 12-14, was installed in 1960.

Alamo River Drop No. 3-A, is located immediately east of the existing North End Dam, in the northwest corner of Section 29, 12-14, and was installed in 1967.

Alamo River Drop No. 4, is located immediately west of railroad bridge, near the east line of Tract 170, Section 3, 13-14, and was installed in 1966.

Alamo River Drop No. 5, in the northwest corner of Tract 180, Section 12, 13-14, was installed in 1960.

Alamo River Drop No. 6, in the southwest corner of Section 30, 13-15, was installed in 1961.

Alamo River Drop No. 6-A, in the southeast corner of Tract 155, Section 18, 14-15, was installed in 1974.

Alamo River Drop No. 7, near the center of Tract 55, Section 30, 14-15, was installed in 1958.

Alamo River Drop No. 8, at the center of E. 1/2 of S. W. 1/4 of Section 5, 15-15, was installed in 1958.

Alamo River Drop No. 9, in the S. E. 1/4 of N. E. 1/4, of Section 20, 15-15, was installed in 1958.

Alamo River Drop No. 10, on the west line of Lot 20, Section 21, 15-15, was installed in 1958.

Alamo River Drop No. 12, in Tract 72, Section 26, 15-15, was installed in 1967.

Alamo River Drop No. 13, in the southwest corner of Tract 65, Section 36, 15-15, was installed in 1967.

LOCATION OF CONTROL DROPS IN NEW RIVER

New River Drop No. 2, in the center of Tract 139, Section 9, 13-14, was installed in 1973.

New River Drop No. 3, in the northwest corner of Tract 92, Section 21, 13-14, was installed in 1964.

New River Drop No. 4, near the west line of Lot 4, Section 32, 13-14, was installed in 1965.

WATER DISTRIBUTION AND
QUALITY ANALYSIS REPORTS

IMPERIAL IRRIGATION DISTRICT

ANNUAL SUMMARY
WATER DIVERSION, TRANSPORTATION, DISTRIBUTION AND DRAINAGE
UNITED STATES AND MEXICO

YEARS OF 1978 AND 1977

WATER DIVERSION

<u>COLORADO RIVER:</u>		<u>1978</u>	<u>1977</u>	
<u>Grand Canyon:</u>				
Discharge - Year		9 332 800	7 568 300	A.F.
<u>Hoover Dam:</u>				
Reservoir Elevation - Dec. 31		1193.31	1180.82	Feet
Maximum Reservoir Elevation		1193.31 (12-31)	1193.79 (2-6)	Feet
Available Storage - Dec. 31		21 960 000	20 250 000	A.F.
Maximum Available Storage		21 960 000	22 995 000	A.F.
Loss in Storage - Year	(G)	1 710 000	1 008 000	A.F.
Daily Discharge - Maximum		22 300 (5-4)	25 000 (4-25)	C.F.S.
- Minimum		1 180 (12-24)	1 390 (1-22)	C.F.S.
- Mean		10 327	10 877	C.F.S.
Discharge - Year		7 476 580	7 875 000	A.F.
<u>Davis Dam:</u>				
Storage - Dec. 31		1 682 000	1 642 000	A.F.
Loss in Storage - Year	(G)	40 000	74 000	A.F.
Daily Discharge - Maximum		19 600 (4-19)	20 600 (7-15)	C.F.S.
- Minimum		1 950 (12-26)	2 220 (1-9)	C.F.S.
- Mean		10 723	11 342	C.F.S.
Discharge - Year		7 763 100	8 211 300	A.F.
<u>Parker Dam:</u>				
Storage - Dec. 31		549 400	549 700	A.F.
Loss in Storage		300	20 800	A.F.
Daily Discharge - Maximum		16 400 (7-23)	17 200 (7-30,31)	C.F.S.
- Minimum		920 (1-11)	1 800 (1-9)	C.F.S.
- Mean		9 210	9 220	C.F.S.
Discharge - Year		6 667 500	6 675 100	A.F.
<u>Imperial Dam:</u>				
Diversions - All-American Canal		4 502 118	4 535 548	A.F.
- Gila Main		796 820	805 910	A.F.
Passing Imperial Dam		391 350	356 910	A.F.
Discharge - Year		5 690 288	5 698 368	A.F.
<u>Yuma - Below Yuma Main Spill:</u>				
Daily Discharge - Maximum		3 060 (3-2)	5 160 (8-19)	C.F.S.
- Minimum		459 (2-27)	415 (12-11)	C.F.S.
- Mean		866	835	C.F.S.
Discharge - Year		626 890	604 240	A.F.
<u>Morelos Dam:</u>				
Diversions to Alamo Canal		1 367 822	1 382 582	A.F.

(G) Gain

WATER TRANSPORTATION

	<u>1978</u>	<u>1977</u>	
<u>All-American Canal:</u>			
*Received at Head	4 502 118	4 535 548	A.F.
*Diversions above Siphon Drop	62 194	62 016	A.F.
*Diversions at Siphon Drop	401 946	397 787	A.F.
<u>Pilot Knob Power Plant:</u>			
*Y.C.W.U.A. Transfer	479 286	508 652	A.F.
*Imperial Irrigation District	266 967	247 743	A.F.
*Total Diversion to Power Plant	746 277	756 766	A.F.
*Diversion to Pilot Knob Spillway	24	371	A.F.
<u>Discharge Below Pilot Knob:</u>			
For C.V.C.W.D.	501 394	498 538	A.F.
For Imperial Irrigation District	2 714 988	2 717 201	A.F.
Total	3 216 382	3 215 739	A.F.
Loss - Imperial Dam to Pilot Knob	75 319	103 240	A.F.
<u>Loss - Pilot Knob to Drop No. 1:</u>			
For C.V.C.W.D.	8 677	4 992	A.F.
For Imperial Irrigation District	43 190	24 171	A.F.
Total	51 867	29 163	A.F.
Diversion to Coachella Canal	492 717	493 546	A.F.
Discharge below Drop No. 1	2 671 798	2 693 030	A.F.
Daily Discharge below Drop No. 1			
- Maximum	6 050 (4-20)	6 300 (8-11)	C.F.S.
- Minimum	300 (1-12)	400 (12-31)	C.F.S.
- Mean	3 690	3 720	C.F.S.
Diversions above E.H.L. Check	1 139 552	1 156 624	A.F.
Discharge below E.H.L. Check	1 507 839	1 514 113	A.F.
Loss - Drop No. 1 to E.H.L. Check	24 407	22 293	A.F.
Diversions E.H.L. to W.S.M. Check	1 485 279	1 496 130	A.F.
Loss - E.H.L. to W.S.M. Check	22 560	17 983	A.F.
Loss - Pilot Knob to W.S.M. Check	90 157	64 447	A.F.
<u>Coachella Canal:</u>			
Received at Head	492 717	493 546	A.F.
Diversion above 6-A Check	4 252	2 150	A.F.
Discharge below 6-A Check	364 604	378 367	A.F.
Loss - Drop No. 1 to 6-A Check	123 861	113 029	A.F.

*Daily report from All-American Canal, River Division

WATER DISTRIBUTION

UNITED STATES:

1. Main All-American Canal:

Division	Net Received		A C R E		F E E T		Canal Loss and Unaccounted for	
			Operational Loss		Deliveries to Users			
	1978	A	1978	B	1978	C	1978	D
East Mesa	8 737	7 135			8 695	7 135	42	
Holtville	535 672	547 240	46	94	506 755	522 866	28 871	24 280
El Centro-Calexico	427 242	433 982	116	208	418 626	426 244	8 500	7 530
Imperial	401 874	391 250	2 512	2 720	374 251	363 186	25 111	25 344
Brawley	417 808	412 961			385 806	385 872	32 002	27 089
Westmorland	395 329	373 372	3 629	3 480	365 223	356 318	26 477	13 574
Calipatria	389 653	399 075	5	21	381 345	393 129	8 303	5 925
Total	2 576 315	2 565 015	6 308	6 523	2 440 701	2 454 750	129 306	103 742
% of Net Received	100.00	100.00	0.24	0.25	94.74	95.70	5.02	4.05

2. Main Canal Operational Loss:

		1978	1977
All-American Canal - Alamo Spillway			A.F.
- New River Spillway		306	332
Dahlia Spillway		284	186
No. 4 Spillway		1 940	1 258
Dixie Spillway		137	212
Vail Spillway - New River		205	96
Vail Supply to Alamo - Above North End Dam		800	481
Rositas - at Rose Heading		747	331
East Highline at "Z" Spillway		3 194	1 642
Total		7 613	4 538
			A.F.

3. Operational Loss Recovered:

A. From Main Canals		A.F.
B. From Divisions - Rositas	3 043	3 835
C. From Divisions - Vail	679	1 070

WATER DISTRIBUTION

	1978		1977	
	Acre-Feet	% Colo. at Imp. Dam	Acre-Feet	% Colo. at Imp. Dam
4. Discharge below Pilot Knob (I.I.D.)	2 714 988	47.71	2 717 201	47.68
		% Disch. Below <u>Pilot Knob</u>		% Disch. Below <u>Pilot Knob</u>
5. Net Operational Loss from Divisions (Item 1B minus 3A and 3B)	2 586	0.09	1 618	0.06
6. Net Operational Loss from Main Canals (Item 2)	7 613	0.28	4 538	0.17
7. Net Deliveries from Main Canals (Item 1A minus 3A and 3B)	2 572 593	94.76	2 560 110	94.22
8. Total Diversions from Main Canals (Item 6 plus 7)	2 580 206	95.04	2 564 648	94.39
9. Total Canal Loss and Unaccounted for - Main Canals (Item 4 minus 8)	134 782	4.96	152 553	5.61
10. Total Canal Loss and Unaccounted for - Entire System (Item 1D plus 9)	264 088	9.73	256 295	9.42
11. Total Deliveries to Users (Item 1C)	2 440 701	89.90	2 454 750	90.34
12. Delivered to I.I.D. Users - Coachella Canal	4 252	0.15	2 150	0.08
13. Grand Total Delivered to Users (Item 11 plus 12)	2 444 953	90.05	2 456 900	90.42

Note: "Unaccounted for" represents, in part, water delivered through approximately 1651 service pipes which are unmeasured.

INFLOW TO SALTON SEA

	<u>1978</u>	<u>1977</u>	
<u>Alamo Channel:</u>			
*Crossing Line from Mexico	1 296	1 419	A.F.
Main Canal Operational Loss	1 547	812	A.F.
Division Operational Loss	(G) 3 183	(G) 4 112	A.F.
Drainage	603 413	616 890	A.F.
Metered at Outlet	603 073	615 009	A.F.
<u>New River Channel:</u>			
*Crossing Line from Mexico	98 408	107 713	A.F.
Main Canal Operational Loss	2 872	2 084	A.F.
Division Operational Loss	2 140	2 250	A.F.
Drainage	289 625	300 931	A.F.
Metered at Outlet	393 045	412 978	A.F.
<u>Direct to Sea:</u>			
Main Canal Operational Loss	3 194	1 642	A.F.
Division Operational Loss	3 629	3 480	A.F.
Drainage	92 437	96 820	A.F.
Total	99 260	101 942	A.F.
<u>Summary:</u>			
*Crossing Line from Mexico	99 704	109 132	A.F.
Main Canal Operational Loss	7 613	4 538	A.F.
Division Operational Loss	2 586	1 618	A.F.
Drainage	985 475	1 014 641	A.F.
Total to Sea	1 095 378	1 129 929	A.F.

ELEVATION OF THE SALTON SEA:

<u>January 1, 1979</u>	<u>January 2, 1978</u>
-228.20	-228.25

(G) Gain

*Computed from Meter Stations at the Boundary.

TONS OF SEDIMENT REMOVED BY DESILTING BASINS AT IMPERIAL DAM

<u>Year</u>	<u>Sediment</u>	<u>High Month</u>	<u>Total Tons</u>	<u>Low Month</u>	<u>Total Tons</u>
1961	196 553	July	58 635	December	144
1962	337 927	July	81 120	December	338
1963	414 033	July	100 802	December	551
1964	392 573	July	120 565	December	331
1965	433 468	August	143 109	January	439
1966	542 921	July	180 225	January	455
1967	318 777	August	92 033	December	259
1968	459 410	March	130 290	December	481
1969	467 052	April	98 337	December	264
1970	445 798	April	180 957	November	858
1971	441 146	April	122 157	January	1 088
1972	439 086	April	138 713	December	1 351
1973	481 774	April	181 326	February	1 169
1974	626 447	April	201 486	January	1 103
1975	470 161	April	132 456	November	994
1976	556 506	April	199 599	January	1 276
1977	530 026	July	150 466	December	1 651
1978	522 696	July	154 504	January	461

PERCENT OF WATER RECEIVED AT PILOT KNOB CHECK
DELIVERED TO USERS - ACRE-FEET

<u>Year</u>	<u>Acre-Feet Received at Pilot Knob Check</u>	<u>Acre-Feet Delivered to Users</u>	<u>Percent Delivered to Users</u>
1965	2 688 158	2 311 966	86.01
1966	2 886 364	2 470 268	85.58
1967	2 769 592	2 365 379	85.41
1968	2 864 151	2 475 825	86.44
1969	2 714 487	2 351 578	86.63
1970	2 807 817	2 418 439	86.13
1971	2 938 783	2 534 599	86.25
1972	2 903 491	2 531 343	87.18
1973	3 008 661	2 670 313	88.75
1974	2 133 038	2 777 221	88.64
1975	3 046 890	2 703 706	88.74
1976	2 831 443	2 515 265	88.83
1977	2 717 201	2 454 750	90.34
1978	2 714 988	2 440 701	89.90

IMPERIAL IRRIGATION DISTRICT
ALL-AMERICAN CANAL ANNUAL DISTRIBUTION IN ACRE-FEET

	<u>1978</u>	<u>1977</u>	<u>1976</u>
<u>Station 60 to Drop 1</u>			
<u>Discharge Station 60</u>			
IID	2 763 773	2 782 357	2 889 855
CVCWD	511 049	510 761	527 653
Yuma	957 905	989 438	1 068 819
Pilot Knob (IID Power)	269 391	252 992	210 026
Total	<u>4 502 118</u>	<u>4 535 548</u>	<u>4 696 353</u>
<u>Diversions Station 60 to 1117</u>			
Bard	62 194	62 016	73 032
Siphon Drop and Walapai	401 946	397 787	495 980
<u>Pilot Knob</u>			
YCWUA	479 286	508 652	478 780
IID (Power)	266 967	247 743	206 218
Spillway	<u>24</u>	<u>371</u>	<u>61</u>
Total to River	746 277	756 766	685 059
<u>Loss Station 60 to 1117</u>			
IID	48 785	65 156	58 412
CVCWD	9 655	12 223	11 509
Yuma	14 455	20 983	21 027
Pilot Knob (IID Power)	<u>2 424</u>	<u>4 878</u>	<u>3 747</u>
Total	<u>75 319</u>	<u>103 240</u>	<u>94 695</u>
<u>Discharge Station 1117</u>			
IID	2 714 988	2 717 201	2 831 443
CVCWD	<u>501 394</u>	<u>498 538</u>	<u>516 144</u>
Total	3 216 382	3 215 739	3 347 587
<u>Loss Station 1117 to Drop 1</u>			
IID	43 190	24 171	47 813
CVCWD	<u>8 677</u>	<u>4 992</u>	<u>10 411</u>
Total	51 867	29 163	58 224

	<u>1978</u>	<u>1977</u>	<u>1976</u>
<u>Drop 1 to West Side Main</u>			
Diversion Coachella Turnout	492 717	493 546	505 733
Discharge below Drop 1	2 671 798	2 693 030	2 783 630
Diversion Drop 1 to EHL Check	1 139 552	1 156 624	1 198 953
Loss Drop 1 to EHL Check	24 407	22 293	32 543
Discharge below EHL Check	1 507 839	1 514 113	1 552 134
Diversions EHL Check to CM			
Check	811 075	819 283	842 272
Loss EHL Check to CM Check	16 343	11 974	9 629
Discharge below CM Check	680 421	682 856	700 233
Diversion CM Check to WSM Check	674 204	676 847	690 357
Loss CM Check to WSM Check	6 217	6 009	9 876
<u>Station 60 to West Side Main</u>			
Diversion Station 60 to WSM	4 327 965	4 362 869	4 491 386
Loss Station 60 to WSM	174 153	172 679	204 967
<u>Coachella Canal</u>			
Coachella at Head	492 717	493 546	505 733
Diversion 6-A Check	4 252	2 150	2 531
Loss - Head to 6-A Check			
IID	1 656	744	850
CVCWD	122 205	112 285	128 789
Total	123 861	113 029	129 639
Discharge below 6-A Check	364 604	378 367	373 563

ANNUAL STATEMENT OF DISTRIBUTION OF WATER
BY DIVISIONS - ACRE-FEET
1978

<u>Division</u>	<u>Received From Main Canals</u>	<u>Percent</u>	<u>Canal Loss and Unaccounted For</u>	<u>Percent</u>	<u>Operational Loss</u>	<u>Percent</u>	<u>Delivered to Users</u>	<u>Percent</u>
Holtville	535 672	100.00	28 871	5.39	46	0.01	506 755	94.60
El Centro-Calexico	427 242	100.00	8 500	1.99	116	0.03	418 626	97.98
Imperial	401 874	100.00	25 111	6.25	2 512	0.62	374 251	93.13
Brawley	417 808	100.00	32 002	7.66	-	0.00	385 806	92.34
Westmorland	395 329	100.00	26 477	6.70	3 629	0.92	365 223	92.38
Calipatria	<u>389 653</u>	<u>100.00</u>	<u>8 303</u>	<u>2.13</u>	<u>5</u>	<u>0.00</u>	<u>381 345</u>	<u>97.87</u>
Total Divisions	2 561 578	100.00	129 264	5.03	6 308	0.25	2 432 006	94.72
East Mesa (Experimental Farm)	8 37	100.00	42	0.48	-	0.00	8 695	99.52
TOTALS	2 576 315	100.00	129 306	5.02	6 308	0.24	2 440 701	94.74

Duty in Acre-Feet
Per Acre

5.41*

Note: *Water duty based on "Annual Inventory of Acres Receiving Water Service," Item "Net Area Irrigated," minus acres served from Coachella Canal

<u>Town or City</u>	<u>1978 Water Delivered Acre-Feet</u>	<u>1978 Population</u>
Calexico	4 638.4	13 341
Holtville	1 475.2	4 480
El Centro	7 077.2	22 660
Imperial	1 727.0	3 244
Brawley	7 457.6	14 138
Westmorland	1 112.0	1 550
Calipatria	1 216.2	2 360
Niland	859.8	917
Seeley	332.0	948
Heber	<u>334.0</u>	<u>2 206</u>
Totals	26 229.4	65 844

Population figures from Imperial Irrigation District's Community and Special Services Section, February 9, 1979, from survey with each community and County Planner.

TOTAL INFLOW TO SALTON SEA
ACRE-FEET

Year	AAC Below Drop No. 1	Delivered to Users	Salton Sea From IID*	Inflow to Salton Sea		Total Inflow to Salton Sea From Coachella	Total Inflow to Salton Sea
				From Mexico	From IID & Mexico		
1964	2 770 474	2 398 693	905 153	106 921	1 012 074	1/ 120 940	1 133 014
1965	2 624 363	2 311 966	882 962	113 137	996 099	1/ 136 580	1 132 679
1966	2 817 912	2 470 268	1 004 685	104 503	1 109 188	1/ 130 760	1 239 948
1967	2 719 861	2 365 379	1 027 970	98 455	1 126 425	1/ 128 950	1 255 375
1968	2 806 124	2 475 825	1 001 027	107 488	1 108 515	1/ 135 670	1 244 185
1969	2 675 833	2 351 578	962 639	104 907	1 067 546	1/ 141 780	1 209 326
1970	2 754 898	2 418 439	1 020 503	101 316	1 121 819	1/ 129 720	1 251 539
1971	2 883 960	2 534 599	1 092 571	108 791	1 201 362	1/ 138 060	1 339 422
1972	2 846 613	2 531 343	1 063 537	112 600	1 176 137	1/ 148 020	1 324 157
1973	2 956 013	2 670 313	1 065 414	118 530	1 183 944	1/ 156 080	1 340 024
1974	3 072 327	2 777 221	1 123 492	113 066	1 236 558	1/ 151 680	1 388 238
1975	3 001 207	2 703 706	1 128 268	101 359	1 229 627	1/ 172 400	1 402 027
1976	2 783 630	2 515 265	1 084 993	103 959	1 188 952	1/ 189 820	1 378 772
1977	2 693 030	2 454 750	1 020 797	109 132	1 129 929	2/ 158 831	1 288 760
1978	2 671 798	2 440 701	995 674	99 704	1 095 378	2/ 144 098	1 239 476

*Includes storm runoff

1/Revised to conform to U.S.G.S. Water Resources Data of California

2/Preliminary data from CVCWD

ALL-AMERICAN CANAL BELOW DROP NO. 1 AND ANNUAL INFLOW TO SALTON SEA
IN ACRE-FEET

YEAR	ALL-AMERICAN CANAL BELOW DROP NO. 1	INFLOW TO SALTON SEA				% OF TOTAL TO SALTON SEA	TOTAL TO SALTON SEA
		I.I.D.	PORTION	% OF DROP NO. 1	FROM MEXICO		
1946	2 697 450	1 074 150		39.82	42 050	3.77	1 116 200
1947	2 633 390	1 022 465		38.83	46 246	4.33	1 068 711
1948	2 699 314	1 007 304		37.32	47 647	4.52	1 054 951
1949	2 761 992	1 086 129		39.32	44 037	3.90	1 130 166
1950	2 938 666	1 104 800		37.60	38 385	3.36	1 143 185
1951	3 066 618	1 169 427		38.13	36 893	3.06	1 206 320
1952	3 203 411	1 260 573		39.35	37 167	2.86	1 297 740
1953	3 353 244	1 345 998		40.14	32 424	2.35	1 378 422
1954	3 095 783	1 273 210		41.13	30 936	2.37	1 304 146
1955	2 927 165	1 069 809		36.55	48 900	4.37	1 118 709
1956	2 906 746	1 091 804		37.56	78 174	6.68	1 169 978
1957	2 781 792	1 011 379		36.36	72 607	6.70	1 083 986
1958	2 730 876	974 045		35.67	105 974	9.81	1 080 019
1959	2 840 173	1 020 963		35.95	123 643	10.80	1 144 606
1960	2 983 860	1 059 804		35.52	123 233	10.42	1 183 037
1961	2 957 200	1 050 700		35.53	116 826	10.01	1 167 526
1962	2 951 266	1 088 965		36.90	133 884	10.95	1 222 849
1963	2 991 429	1 153 827		38.57	141 064	10.89	1 294 891
1964	2 770 474	905 153		32.67	106 921	10.56	1 012 074
1965	2 624 363	882 962		33.64	113 137	11.36	996 099
1966	2 817 912	1 004 685		35.65	104 503	9.42	1 109 188
1967	2 719 861	1 027 970		37.79	98 455	8.74	1 126 425
1968	2 806 124	1 001 027		35.67	107 488	9.70	1 108 515
1969	2 675 833	962 639		35.98	104 907	9.83	1 067 546
1970	2 754 898	1 020 503		37.04	101 316	9.03	1 121 819
1971	2 883 960	1 092 571		37.88	108 791	9.06	1 201 362
1972	2 846 613	1 063 537		37.36	112 600	9.57	1 176 137
1973	2 956 013	1 065 414		36.04	118 530	10.01	1 183 944
1974	3 072 327	1 123 492		36.57	113 066	9.14	1 236 558
1975	3 001 207	1 128 268		37.59	101 359	8.24	1 229 627
1976	2 783 630	1 084 993		38.98	103 959	8.74	1 188 952
1977	2 693 030	1 020 797		37.91	109 132	9.66	1 129 929
1978	2 671 798	1 024 612	995 674	37.27	99 704	9.10	1 095 378

	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
	.0	60.6	49.9	46.9	49.0	85.9
	.5	39.1	43.5	55.8	37.9	38.0
	.1	39.3	38.5	36.5	34.3	36.9
	.4	33.6	37.8	38.3	34.0	35.2
	.7	33.7	35.2	36.2	34.4	35.1
	.8	31.4	33.9	30.7	29.6	29.2
	.0	29.8	30.4	28.7	26.8	28.3
	.5	29.8	29.9	27.5	60.9	29.9
	.0	36.5	38.5	58.7	36.3	36.1
	.0	43.1	42.1	44.4	43.1	48.1
	.1	48.5	46.9	57.1	45.6	51.4
	.2	51.3	49.5	49.0	52.1	65.4
	.7	37.0	38.4	39.3	38.1	37.5

SALINITY OF WATER BELOW DROP 1 ON ALL-AMERICAN CANAL

<u>Year</u>	<u>*Aver. t.a.f.</u>	<u>Total Tons (Millions)</u>	<u>Year</u>	<u>*Aver. t.a.f.</u>	<u>Total Tons (Millions)</u>
1949	0.93	2.6	1964	1.19	3.3
1950	0.94	2.7	1965	1.30	3.4
1951	1.00	3.1	1966	1.30	3.7
1952	0.95	3.0	1967	1.22	3.3
1953	0.98	3.3	1968	1.21	3.4
1954	1.01	3.1	1969	1.27	3.4
1955	1.17	3.4	1970	1.27	3.5
1956	1.27	3.7	1971	1.27	3.7
1957	1.22	3.4	1972	1.24	3.5
1958	1.00	2.7	1973	1.18	3.5
1959	1.00	2.9	1974	1.19	3.7
1960	1.06	3.2	1975	1.19	3.6
1961	1.13	3.3	1976	1.17	3.3
1962	1.15	3.4	1977	1.13	3.0
1963	1.13	3.4	1978	1.08	2.9

*Weighted Average, Salt Concentrations

SUMMARY OF SALT BALANCE
EXCLUDING WATER AND SALT FROM MEXICO

Year	INFLUENT 1/				EFFLUENT				Tons Salt Diff.			Percent Loss or Gain
	Total Discharge A.F.	Tons of Salt Brought Into the Area	Weighted Average 2/ T.A.F. P.P.m.	Total Discharge A.F.	Tons of Salt Removed	Weighted Average 2/ T.A.F. P.P.m.						
1958	2 730 876	2 723 153	1.00	735	974 045	3 341 376	3.43	2 521	618 223	22.70	gain	
1959	2 840 173	2 852 019	1.00	735	1 020 963	3 401 652	3.33	2 448	549 633	19.27	gain	
1960	2 983 860	3 162 485	1.06	779	1 059 804	3 558 534	3.36	2 470	396 049	12.52	gain	
1961	2 957 200	3 330 087	1.13	831	1 050 700	3 572 808	3.40	2 499	242 721	7.29	gain	
1962	2 951 266	3 399 464	1.15	845	1 088 965	3 806 946	3.50	2 573	407 482	11.99	gain	
1963	2 991 429	3 378 583	1.13	831	1 153 827	4 050 087	3.51	2 580	671 504	19.88	gain	
1964	2 770 474	3 284 284	1.19	875	905 153	3 635 121	4.02	2 955	350 837	10.68	gain	
1965	2 624 363	3 406 457	1.30	955	882 962	3 819 255	4.33	3 183	412 798	12.12	gain	
1966	2 817 912	3 650 447	1.30	955	1 004 685	4 148 874	4.13	3 036	498 427	13.65	gain	
1967	2 719 861	3 306 261	1.22	897	1 027 970	4 139 477	4.03	2 962	833 216	25.20	gain	
1968	2 806 124	3 408 548	1.21	889	1 001 027	4 012 009	4.01	2 947	603 461	17.70	gain	
1969	2 675 833	3 396 105	1.27	933	962 639	3 754 477	3.90	2 867	358 372	10.55	gain	
1970	2 754 898	3 488 023	1.27	933	1 020 503	3 780 732	3.70	2 719	292 709	8.39	gain	
1971	2 883 969	3 666 277	1.27	933	1 092 571	3 900 990	3.57	2 624	234 713	6.40	gain	
1972	2 846 613	3 541 248	1.24	911	1 063 537	3 886 592	3.65	2 683	345 344	9.75	gain	
1973*	2 956 013	3 492 199	1.18	867	1 065 414	3 980 338	3.74	2 749	488 139	13.98	gain	
1974*	3 072 327	3 669 832	1.19	875	1 123 492	4 204 158	3.74	2 749	534 326	14.56	gain	
1975*	3 001 207	3 581 043	1.19	875	1 128 268	4 196 407	3.72	2 734	615 364	17.18	gain	
1976*	2 783 630	3 263 454	1.17	860	1 084 993	4 361 658	4.02	2 955	1 098 204	33.68	gain	
1977*	2 693 030	3 039 155	1.13	831	1 020 797	4 187 227	4.10	3 014	1 148 072	37.78	gain	
1978*	2 671 798	2 897 906	1.08	797	995 674	3 824 323	3.84	2 823	926 417	31.97	gain	

None: Part of the water in Alamo River from Mexico was used for irrigation in U.S. prior to January 4, 1958.

1/ Based on weekly samples at All-American Canal Station 2963 (East Highline Check) 1958 through 1972.
2/ P.P.m. = $735 \times T.A.F.$

Prior to January 1, 1970, all salt concentrations were obtained by evaporation and drying at 105° C.
Subsequent to January 1, 1970, concentrations were obtained by drying at 180° C.

* Based on weekly samples at All-American Canal below Drop 1

INFLOW TO SALTON SEA - I.I.D. PORTION
Percent of Drop No. 1

	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
January	51.1	42.2	56.4	48.6	42.6	58.4	45.5	49.0	50.1	48.0	60.6	49.9	46.9	49.0	85.9
February	42.5	35.8	40.4	40.0	42.0	41.8	44.3	44.7	46.3	51.5	39.1	43.5	55.8	37.9	38.0
March	40.8	33.3	37.6	36.0	39.7	36.7	40.4	40.7	36.1	37.1	39.3	38.5	36.5	34.3	36.9
April	34.4	33.3	31.5	36.9	34.3	33.6	36.0	34.6	33.9	34.4	33.6	37.8	38.3	34.0	35.2
May	27.6	28.7	30.8	33.1	32.0	32.0	33.8	34.9	32.5	33.7	33.7	35.2	36.2	34.4	35.1
June	24.5	26.7	28.8	29.7	28.5	29.5	31.0	31.7	30.6	30.8	31.4	33.9	30.7	29.6	29.2
July	23.3	26.3	28.7	29.1	31.0	28.1	36.2	29.4	28.0	27.0	29.8	30.4	28.7	26.8	28.3
August	24.6	27.8	29.4	40.5	29.1	28.6	30.4	34.1	29.1	28.5	29.8	29.9	27.5	60.9	29.9
September	30.1	32.2	37.2	44.5	36.3	37.2	34.3	38.7	36.1	33.0	36.5	38.5	58.7	36.3	36.1
October	38.4	40.3	46.9	43.9	41.5	41.1	40.8	44.5	57.8	40.0	43.1	42.1	44.4	43.1	48.1
November	42.9	49.6	49.2	56.0	43.5	56.8	47.6	45.8	51.6	45.1	48.5	46.9	57.1	45.6	51.4
December	44.2	71.2	43.4	74.9	46.0	43.2	47.1	47.8	46.9	59.2	51.3	49.5	49.0	52.1	65.4
Yearly Average	33.6	33.6	35.8	38.1	36.2	36.4	37.3	38.6	37.7	36.7	37.0	38.4	39.3	38.1	37.5

SALINITY - SALTON SEA			
Year	Total Dissolved*		Total Dissolved** Solids p.p.m.
	Solids P.P.M.	T.A.F.	
1953	35 158	47.81	1966 36 339
1954	34 000	46.24	1967 38 120
1955	33 451	45.49	1968 38 540
1956	34 113	46.39	1969 40 009
1957	34 573	47.02	1970 38 583
1958	35 769	48.65	1971 39 150
1959	35 749	48.62	1972 39 013
1960	35 366	48.10	1973 39 186
1961	35 303	48.01	1974 39 183
1962	35 122	47.77	1975 38 973
1963	35 998	48.96	1976 38 528
1964	36 727	49.95	1977 38 461
1965	36 835	50.10	1978 38 141

* Average of total parts per million of samples taken at Bertram Station, Desert Ranch, Sandy Beach, and Salton Sea Beach for each respective year.

** p.p.m. x .00136 = T.A.F.

Note: Sample taken between the Alamo and New Rivers has been excluded due to possible influence of fresh water from rivers on salinity determination of the Sea.

All samples are surface samples taken in May and November of each year.

Parts per million were determined by evaporation, dried at 105° C. prior to January 1, 1970, and dried at 180° C. subsequent to January 1, 1970.

COMPLETE ANALYSES SALTON SEA
(Surface Samples)
1978

Date of Sample	Sandy Beach 10-30-78	Desert Beach 10-30-78	Salton Sea Beach 10-30-78	Bertram Station 10-30-78	Between Alamo & New River Outlets 10-30-78
<u>CATIONS</u>					
CA	ppm epm % epm	982 49.00 8	989 49.33 8	1 002 50.00 8	989 49.33 8
Mg	ppm epm % epm	1 305 107.33 17	1 240 102.00 16	1 240 102.00 16	1 240 102.00 16
Na + K	ppm epm % epm	11 016 479.01 75	11 197 486.87 76	11 206 487.30 76	11 202 487.11 76
<u>ANIONS</u>	ppm pm epm	151 2.48 1	153 2.50 1	153 2.50 1	153 2.50 1
HCO ₃ +CO ₃	ppm pm epm	16 916 477.09 75	16 91 47 9 74	16 916 477.09 74	16 916 477.09 74
Cl	ppm epm % epm	7 482 155.77 24	7 618 158.61 25	7 671 159.71 25	7 630 158.85 25
SO ₄	ppm epm % epm			1 278.6	1 275.56
Total	ppm	1 270.68	1 276.40	1 276.88	37 812 51.42
T.D.S.* K x 10 ⁶ at 25°C ph *By Evaporation	ppm t.a.f.	39 484 53.70 52 420 8.2	38 484 52.34 52 420 8.2	39 072 53.14 52 420 8.2	52.66 52 420 8.2

Imperial Irrigation District
Salton Sea Study
Summary of Observations at Evaporation Stations
1978

Year	Sandy Beach						Devil's Hole						Salt Farm						Average Pan Evap. Inches		
	Mean Temp.		Mean Avt. Temp.		Total Wind Miles	Rain Total Inches	Pan Meas. Evap. Inches	Mean Temp.		Mean Avg. Temp.		Total Wind Miles	Rain Total Inches	Pan Meas. Evap. Inches	Mean Temp.		Mean Avg. Temp.		Total Wind Miles	Rain Total Inches	Pan Meas. Evap. Inches
	Max.	Min.	Max.	Min.				Max.	Min.	Max.	Min.			Max.	Min.	Max.	Min.				
Jan.	65.7	47.0	56.4	839.5	2.37	2.72	66.7	43.2	55.0	547.0	1.98	2.93	66.4	44.2	55.3	1355.6	1.80	2.54	2.73		
Feb.	70.9	49.4	60.2	1411.5	0.62	3.77	69.3	45.2	57.3	1051.8	0.89	4.35	68.4	44.4	56.4	1808.2	0.78	3.39	3.84		
Mar.	77.9	57.0	67.5	2095.8	0.44	6.74	78.3	52.0	65.2	1255.2	0.60	5.10	78.6	52.7	65.7	2314.1	0.41	4.82	5.55		
Apr.	80.2	56.5	68.4	3476.1	0.32	10.95	80.6	53.1	66.9	1964.1	0.30	9.23	81.6	53.3	67.5	2861.0	0.20	8.45	9.54		
May	90.6	65.6	78.1	3064.0	0.00	15.13	91.4	58.6	75.0	2037.8	0.00	12.94	92.9	59.7	76.3	2608.5	0.00	11.17	13.08		
June	105.7	77.5	91.6	3458.0	0.00	19.97	101.0	65.1	83.1	1772.7	0.00	14.84	106.4	68.1	87.3	2551.7	0.00	14.42	16.41		
July	104.1	79.5	91.8	2563.4	0.00	16.24	104.0	73.8	88.9	1550.8	0.00	14.80	109.4	77.9	93.7	2477.8	0.00	16.15	15.73		
Aug.	102.5	79.7	91.1	2961.0	0.00	18.13	103.0	72.7	87.9	1576.1	0.00	14.49	105.4	73.4	89.4	2785.0	0.00	16.62	16.41		
Sept.	97.2	73.9	85.6	2424.7	0.00	13.71	95.8	68.6	82.2	1958.1	0.00	13.57	96.6	70.2	83.4	2392.9	0.00	16.53	14.60		
Oct.	92.2	68.8	80.5	1498.6	0.90	10.93	90.9	61.2	76.1	920.7	0.28	9.25	92.1	63.3	77.7	1397.2	1.94	9.72	9.97		
Nov.	74.7	49.5	62.1	1454.9	1.17	7.76	71.6	46.0	58.8	994.9	1.05	6.50	74.2	49.5	61.9	1449.7	0.67	5.26	6.51		
Dec.	62.7	38.4	50.6	791.4	0.75	3.69	60.2	36.1	48.2	633.5	0.48	3.76	61.4	36.6	49.0	1342.8	0.76	3.11	3.52		
Totals	1024.4	742.8	883.9	2608.9	6.57	129.74	1012.8	675.6	844.6	16262.7	5.58	111.76	1033.4	693.3	863.6	25344.5	6.56	112.18	117.89		
Mean	85.4	61.9	73.7	2169.9	---	10.81	84.4	56.3	70.4	1355.2	----	9.31	86.1	57.8	72.0	2112.0	----	9.35	9.82		

Note: Tabulated evaporation is that observed in the pan and has not been corrected for pan factor or salinity.

Evaporation measured from 2-feet diameter x 3-feet deep buried screen pan - 1/4-inch mesh screen.

SALTON SEA EVAPORATION
Screened Evaporation Pans

(Averages for 3 Weather Stations)

Reported Actual Evaporation in Feet^{1/}

	<u>25-Yr. Avg.</u>	<u>1977</u>	<u>1978</u>	<u>1978 Difference</u>	
	<u>1952-1976</u>			<u>From Avg.</u>	<u>From 1977</u>
January	0.28	0.25	0.23	- 0.05	- 0.02
February	0.36	0.42	0.32	- 0.04	- 0.10
March	0.59	0.67	0.46	- 0.13	- 0.21
April	0.79	0.74	0.79	0.00	+ 0.05
May	0.99	0.94	1.09	+ 0.10	+ 0.15
June	1.06	1.12	1.37	+ 0.31	+ 0.25
July	1.06	1.15	1.31	+ 0.25	+ 0.16
August	1.03	1.14	1.37	+ 0.34	+ 0.23
September	0.86	0.92	1.22	+ 0.36	+ 0.30
Ocotber	0.64	0.63	0.83	+ 0.19	+ 0.20
November	0.41	0.53	0.54	+ 0.13	+ 0.01
December	0.30	0.37	0.29	- 0.01	- 0.08

7.37 8.85 9.82

1/ Observed pan evaporation plus rainfall

NET INFLOW TO SALTON SEA

1978

Date	Measured Pan Evaporation		Sea Evaporation	IID Inflow To Sea	Total Inflow To Sea	Difference Inflow-Evap.
	①	②	③	④	⑤	⑥
	Inches	Feet	Acre-Feet	Acre-Feet	Acre-Feet	Acre-Feet
Jan.	2.73	0.23	32 500	53 500	56 700	+ 24 200
Feb.	3.84	0.32	45 800	67 000	71 100	+ 25 300
March	5.55	0.46	66 100	101 400	107 600	+ 41 500
April	9.54	0.79	113 700	127 200	134 900	+ 21 200
May	13.08	1.09	155 900	112 900	119 800	- 36 100
June	16.41	1.37	195 600	84 600	89 800	- 105 800
July	15.73	1.31	187 400	94 900	100 700	- 86 700
Aug.	16.41	1.37	195 600	98 200	104 200	- 91 400
Sept.	14.60	1.22	174 000	100 400	106 500	- 67 500
Oct.	9.97	0.83	118 800	97 500	103 400	- 15 400
Nov.	6.51	0.54	77 600	79 400	84 200	+ 6 600
Dec.	3.52	0.29	41 900	78 400	83 200	+ 41 300
TOTAL	117.89	9.82	1 404 900	1 095 400	1 162 100	- 242 800

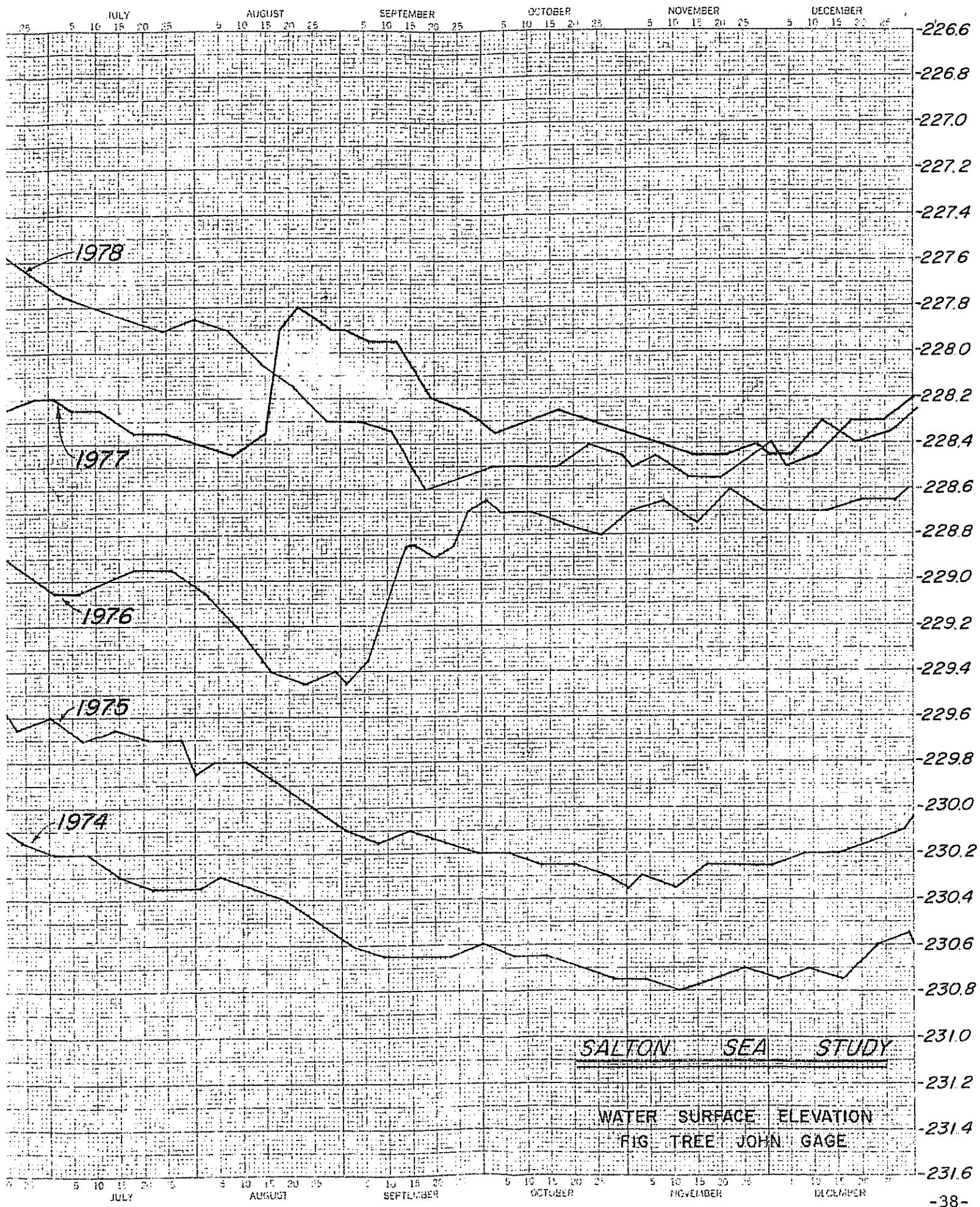
③ = ② x 0.65 (pan factor) x 220,000 Ac. (Sea surface area)

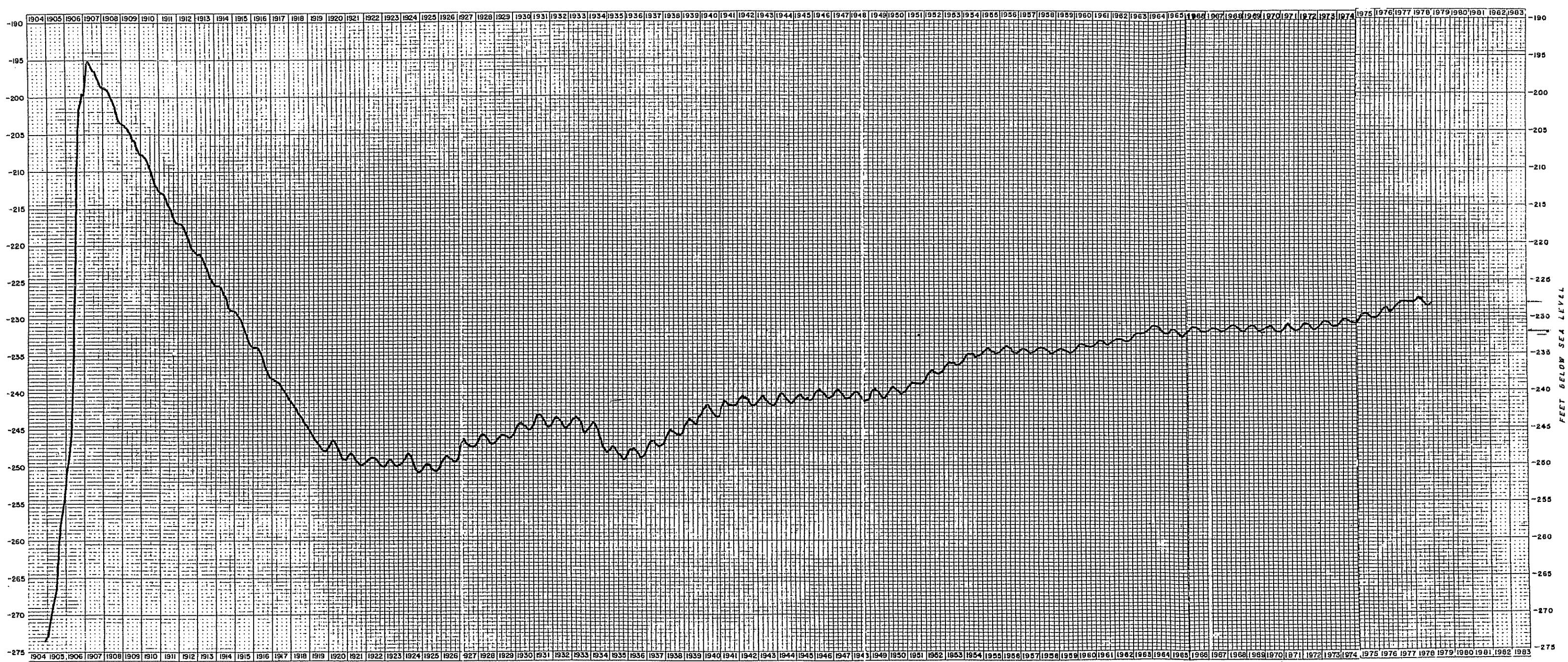
⑤ = ④ x 1.061 (estimated factor to include Coachella Area inflow to Sea)

Note: Pan evaporation in feet was carried to 4 decimal places in calculating sea evaporation (Column 3)
Acre-feet rounded to the nearest 100.

ELEVATION OF SALTON SEA IN FEET BELOW SEA LEVEL
 (Near Fig Tree John Spring, Section 23, T. 8 S., R. 9 E.)

<u>Year</u>	<u>Elevation End of Year</u>	<u>Year</u>	<u>Elevation End of Year</u>
1929	245.20	1954	234.75
1930	244.30	1955	234.35
1931	244.20	1956	234.50
1932	244.00	1957	234.45
1933	244.60	1958	234.60
1934	247.80	1959	234.30
1935	248.30	1960	233.75
1936	247.70	1961	233.35
1937	246.40	1962	232.65
1938	244.70	1963	231.20
1939	242.20	1964	231.85
1940	242.50	1965	232.00
1941	241.00	1966	231.95
1942	241.30	1967	231.75
1943	241.05	1968	231.80
1944	240.80	1969	231.95
1945	240.35	1970	231.90
1946	240.45	1971	231.65
1947	240.45	1972	231.30
1948	240.75	1973	231.15
1949	240.20	1974	230.65
1950	239.60	1975	230.05
1951	238.30	1976	228.60
1952	236.60	1977	228.25
1953	235.75	1978	228.20





WATER SURFACE ELEVATION — SALTON SEA

WATER RECOVERY DRAINS PARALLEL TO EAST HIGHLINE CANAL

Year May to Dec. 1967	DP-17		DP-18		DP-19		DP-20		DP-21		DP-22		DP-23	
	Plum to Pine		Pear to EHL Lat. 10		EHL Lat. 10 to Lat. 11		Oat to Oasis		Highway 80 to EHL Lat. 8		EHL Lat. 8 to Pear		Oak to Moss	
	Acre-Feet Recovered	Cost	Acre-Feet Recovered	Cost	Acre-Feet Recovered	Cost	Acre-Feet Recovered	Cost	Acre-Feet Recovered	Cost	Acre-Feet Recovered	Cost	Acre-Feet Recovered	Cost
1968	1 288	510	467	\$ 182	262	\$ 116	140	\$ 98	96	\$ 54	121	\$ 58	-	\$ -
1969	1 449	516	1 508	580	723	353	697	323	1 120	455	713	355	-	-
1970	1 321	479	1 416	533	658	332	653	314	1 088	447	621	328	925	361
1971	1 349	487	1 455	544	570	304	640	309	1 053	436	593	317	1 351	533
1972	1 207	451	1 388	526	568	306	599	295	1 123	456	652	332	1 297	519
1973	1 130	432	1 410	531	511	284	589	287	936	431	658	334	1 272	513
1974	1 109	590	1 363	680	599	384	587	304	889	532	588	385	1 340	700
1975	1 072	790	1 220	889	512	448	301	263	932	606	499	437	1 190	927
1976	984	755	1 084	839	470	422	371	314	865	717	507	461	1 269	948
1977	1 060	928	663	643	397	428	397	384	885	878	347	371	1 347	1 119
1978	977	977	559	679	390	462	441	439	911	915	242	438	1 298	1 272

Year May to Dec. 1967	DP-24		DP-25		DP-26		DP-27		DP-28		Totals		Average Power Cost Per Acre-Foot	
	Ohmar to Oleander		Orange to Ohmar		Oxalis to Orange		EHL Lat. 11 to Lat. 12		Oasis to Orient		Acre-Feet Recovered	Cost	Acre-Feet Recovered	Cost
	Acre-Feet Recovered	Cost	Acre-Feet Recovered	Cost	Acre-Feet Recovered	Cost	Acre-Feet Recovered	Cost	Acre-Feet Recovered	Cost	Acre-Feet Recovered	Cost	Acre-Feet Recovered	Cost
1968	-	-	-	-	-	-	-	-	-	-	736	\$ 287	-	-
1969	-	-	-	-	-	-	-	-	-	-	2 374	1 018	\$ 0.43	
1970	-	-	-	-	-	-	-	-	-	-	6 210	2 582	0.42	
1971	406	\$ 143	-	-	-	-	-	-	-	-	7 417	3 073	0.41	
1972	1 854	653	1 361	\$ 627	-	-	-	-	-	-	10 049	4 165	0.41	
1973	1 795	636	1 489	648	3 309	\$ 1 120	2 731	\$ 1 012	-	-	15 830	6 228	0.39	
1974	1 850	884	1 109	603	3 714	1 825	3 195	1 548	2 369	\$ 1 063	18 712	9 498	0.51	
1975	1 460	1 124	1 300	995	3 368	2 362	3 046	2 097	3 094	1 822	17 994	12 760	0.71	
1976	1 388	1 168	1 370	1 195	3 126	2 387	3 062	2 271	3 296	2 092	17 792	13 569	0.76	
1977	1 760	1 388	1 210	1 388	3 047	2 665	2 947	2 566	3 244	2 412	17 304	15 170	0.88	
1978	1 833	1 569	1 322	1 544	3 704	3 475	3 039	2 863	3 255	2 633	17 971	17 266	0.96	

Mileage:
• 50 Mile - Total 6.00 miles
Power costs calculated in Engineering Section

1978 SUMMARY OF STRUCTURES INSTALLED, REPLACED,
NEW CONSTRUCTION AND ITEMS OF INTEREST CONCERNING
OPERATION AND MAINTENANCE

WATER CONSERVATION

The J. M. Sheldon Water Conservation Reservoir is a 500-acre-foot regulation reservoir, constructed on a 60-acre site in portion of Tracts 214 and 308, 14-13, on the West Side Main Canal. This reservoir receives water from the West Side Main Canal that would normally be surplus and stores it for beneficial use below No. 8 Heading when required. This reservoir was constructed and put into operation in 1977. A total of 17,199 acre-feet was diverted to the reservoir and 16,941 acre-feet was released in 1978.

The Kakoo Singh Reservoir, a 300-acre-foot regulation reservoir, constructed on a 40-acre site adjacent to the East Highline Canal, near the Vail Supply Heading, and above the Nectarine Check to store water from the East Highline Canal and release to the Vail Supply Canal as needed, was constructed and put into operation in 1976. A total of 16,605 acre-feet was diverted to this reservoir and 16,380 acre-feet was released in 1978. This was formerly the Nectarine Reservoir. It was changed to Kakoo Singh Reservoir by Board of Directors in Resolution No. 98-78, dated December 12, 1978.

The thirteen-point program approved by the Board of Directors on June 29, 1976, to obtain the most beneficial use of water continued during 1978, with the two most effective items being the water conservation reservoirs and personnel checking surface field discharge. A total of 27,257 heads of water were checked. Of the 27,257 heads checked, there were 5,896 heads wasting 15 percent, or more, of the water delivered, and after the second check there were 1,230 of the orders assessed. The program was discontinued the entire month of January due to low flows caused by intermittent rains and discontinued again due to rain on the following dates: February 1 through 15, March 1 through 6, October 21 through 26, November 24 through 29 and December 17 through 31.

The District and the U. S. Department of Agriculture, Imperial Valley Research Center, Brawley, continued the cooperative project for a study to evaluate on-farm irrigation efficiency under conventional soil and water management and the effect and applicability of new soil and water management practices designed to improve on-farm irrigation efficiency.

The Board of Directors in July, 1977, approved the designation of the Imperial Irrigation District by the California Regional Water Quality Control Board as the agency in Imperial Valley responsible for implementation of the 208 Planning Program dealing with development and evaluation of alternative management practices for control of agricultural waste water discharges.

AUGUST, 1977, STORM DAMAGE

The divisions and the drainage section completed all storm repairs caused by Tropical storm "Doreen" in August, 1977, by the end of February, 1978. There were three headwalls, five well boxes and two waste pipes replaced.

STATE HIGHWAY CROSSINGS

The culvert in Moorhead Lateral 1 Canal crossing State Highway 78, near center west line, Tract 42, 13-14, was replaced with two 3' x 8' precast concrete headwalls and 86 feet of 30-inch CSRCP Deep Bell RG concrete pipe. State of California, Department of Transportation paid total cost.

State Highway 78 crossing in Wells Drain, near center east line Tract 43, 13-14, was replaced as follows: the siphon with 82.5 feet of 18-inch Packer-head concrete pipe, a 48" x 10' concrete manhole with bottom and lid and a 3' x 9' precast concrete headwall; the borrow pit pipe was replaced with 30 feet of 12-inch CSRCP Deep Bell RG concrete pipe with a 20" x 20" x 5' concrete well box on the inlet and 7.5 feet of 18-inch Packerhead concrete pipe on the outlet. The waste box was installed with 6 feet of 12-inch CSRCP Deep Bell RG concrete pipe and a 20" x 20" x 5' concrete well box and the sump connection was made with 20 feet of 8-inch Techite pipe. State of California, Department of Transportation paid total cost.

SUMP PUMPS

A sump pump was installed at the El Centro Steam Plant in the S. 1/2 of Tract 47, 15-14, with discharge into an evaporation pond. All operation and maintenance to be provided by steam plant personnel.

P. S. Sump No. 61 was installed near the center of the north line S. E. 1/4, Tract 199, 14-14, with discharge into New River. Imperial Irrigation District and USDA Imperial Valley Conservation Research Center each paid 50 percent of the cost. Agreement between Imperial Irrigation District and USDA, authorized by Board of Directors March 28, 1978. All future operation and maintenance to be provided by the USDA.

OAKLEY CANAL - STRUCTURES

Because of the combining of the City street and County road resulting in the elimination of median between same, the following work was performed on the Oakley Canal in Section 34, 13-14: the existing manholes at deliveries 89, 90, 91, 92 and 93 were removed; check and deliveries 94-A and 94-B were removed and delivery 94 was relocated. City of Brawley paid total cost.

PEAR CANAL ENTRANCE INSTALLED

Due to the concrete lining of a portion of Pear Canal, the entrance at Pear Side Main Heading, near southwest corner, Tract 100, 16-16, was installed with 16 feet of 72-inch Flush Bell concrete pipe. County of Imperial paid total cost.

ELDER LATERAL 7 CANAL - STRUCTURES REPLACED

Due to the concrete lining and relocation of a portion of Elder Lateral 7 Canal along south line E. 1/2, Tract 192, 16-13, deliveries 59 and 60 were each replaced with a 3' x 5' concrete delivery and 16 feet of 30-inch CSRCP Deep Bell RG concrete pipe. The check for delivery 60 was replaced with a 6' x 7' concrete headwall.

PORTION PEAR 2 DRAIN - ABANDONED

A portion of Pear 2 Drain, the terminal 200 lineal feet, near northwest corner E. 1/2, Tract 93, 15-16, was backfilled and abandoned in accordance with request from landowner.

PORTION CENTRAL MAIN DRAIN RELOCATED

A portion of Central Main Drain along the north line of E. 1/2, Tract 69, 15-14, was relocated to provide for the widening of Aten Road by the County of Imperial.

DOLSON DRAIN RELOCATED

A portion of Dolson Drain was relocated in earth channel, from a point near center south line Lot 6, Section 5, east to a point near the center east line N. 1/2, Tract 150, 15-14, then north to a point near the center east line of east 40 acres, Tract 184, 14-14. The landowners backfilled the existing channel in accordance with recorded agreement between Imperial Irrigation District and landowners.

DOLSON 4 DRAIN ABANDONED

A portion of Dolson 4 Drain, from near center N. 1/2, Tract 150, 15-14, to near center east 40 acres, Tract 184, 14-14, was abandoned due to the relocation of portion of Dolson Drain. The landowners backfilled the existing channel in accordance with recorded agreement between Imperial Irrigation District and landowners.

MESA DRAIN NO. 8 EXTENDED AND PIPELINED

Mesa Drain No. 8 was extended from a point near the center north line E. 1/2, S. W. 1/4 of N. W. 1/4, Section 25, to a point near center north line N. E. 1/4 of N. W. 1/4, Section 25, 16-16, and pipelined with 18-inch diameter local concrete pipe.

MESA DRAIN NO. 8-A CONSTRUCTED AND PIPELINED

Mesa Drain No. 8-A was constructed across the S. W. 1/4 of N. W. 1/4, Section 25, 16-16, parallel and east of the East Highline Canal and pipelined with 14-inch diameter local concrete pipe.

FARM TILE

The landowners installed a total of 958.32 miles of drain tile in 1978, for a total of 24,714.98 miles installed since 1929.

WATER WEED HYDRILLA

Work is continuing with the Imperial Irrigation District, State and County checking to find the extent of infestation and methods of control of the highly prolific water weed, *Hydrilla*, which was discovered growing in our system in June, 1977.

Various methods and types of material have been tried in sections of the All-American Canal and the J. M. Sheldon Reservoir.

A Task Force comprised of representatives from various Federal, State and Irrigation District organizations met October 3, 4 and 5, 1978, to formulate recommendations to combat Hydrilla. A draft report was distributed for comment with the final report received in December.

Komeen Herbicide is being stockpiled by State and Federal agencies for emergency application in the All-American and West Side Main Canals in 1979, with a full program in the ensuing years for total eradication.

IRRIGATION CAPITAL IMPROVEMENT FUND

There were 16.87 miles of canals concrete lined with money derived from the Irrigation Capital Improvement Fund during 1978, and a total of 81.17 miles since the program was approved in 1975. The Board of Directors authorized the Irrigation Capital Improvement Fund effective July, 1975, by increasing the water rate fifty cents an acre-foot for all water used, except where water service is taken from the canals of the District for use by cities, incorporated towns, private water companies, mutual water companies and water utility districts for lands or properties within the boundaries of the District.

SPECIAL BUDGET - CONCRETE LINING

There were 2.33 miles of Wistaria Lateral 2 Canal concrete lined, a Special Budgeted item on a participation basis with the State of California, Department of Transportation.

WEED CONTROL - MATERIAL
1978

Divisions	Pounds of Chemical			Gallons of Chemical				
	Main Canals	Lateral Canals	Drains	Total	Main Canals	Lateral Canals	Drains	Total
Holtville	3 242	37 653	4 984	45 879	-	-	199	189
El Centro-Calexico	4 828	29 782	5 402	40 012	1 200	-	159	4 830
Imperial	9 117	12 890	1 796	23 803	825	-	175	495
Brawley	4 139	25 325	11 558	41 022	-	-	30	2 730
Westmorland	4 578	20 582	6 014	31 174	-	-	2 012	840
Calipatria	<u>5 601</u>	<u>21 403</u>	<u>7 379</u>	<u>34 383</u>	<u>-</u>	<u>-</u>	<u>72</u>	<u>3 180</u>
Total Division	31 505	147 635	37 133	216 273	2 025	2 647	12 264	16 936
All-American	13 980	3 510	53	17 543	4 490	-	-	4 490
Drainage	-	-	15 436	15 436	-	-	7 046	7 046
Grand Total	45 485	151 145	52 622	249 252	6 515	2 647	19 310	28 472

SUMMARY OF ENGINEERING WORK

	<u>1978</u>	<u>1977</u>
<u>Office</u>		
1. No. Special Jobs	125	143
2. No. Delivery Investigations	68	99
3. No. Tile Drain Construction Investigations	230	319
4. No. Drain & Irrigation Investigations	170	107
5. No. Engineering Data Reports	198	195
6. No. of Power Jobs	13	11
7. No. Miscellaneous Jobs	460	572
Total	<u>1 264</u>	<u>1 446</u>
<u>8. Laboratory</u>		
(a) No. Silt Analyses	685	829
(b) No. Salinity Analyses	1 254	1 068
(c) No. Complete Analyses	157	200
Total Item No. 8	<u>2 096</u>	<u>2 097</u>
<u>9. Reproduction</u>		
(a) Blueprints - sq. ft.	114 445	105 326
(b) Photostats - sq. ft.	1 250	1 984
<u>10. Microfilm</u>		
(a) No. Drawings Microfilmed	3 507	5 035
Total No. Drawings Microfilmed		
May 1, 1975 to December 31, 1978	20 822	17 290
<u>Field</u>		
<u>Miles Staked or Surveyed</u>		
1. Delivery Investigations	13.52	18.62
2. Tile Drain Constructions	1.15	3.89
3. Tile Drain Investigations	85.21	61.32
4. Drain and Irrig. Investigations	305.34	374.22
5. Power Surveys	18.25	3.34
Total	<u>423.47</u>	<u>461.39</u>
6. Test Well Readings ~ Man-Days	-	47.50
7. Miscellaneous ~ Party Hours	808.00	830.50

SUMMARY OF DRAINAGE ENGINEERING WORK

	<u>1978</u>	<u>1977</u>
1. Number Requests for Tile Drainage Invest.	62	49
Total Acreage for Tile Drainage Invest.	4 620	3 520
2. Number Requests for Tile Drainage Outlets Only	60	48
Total Acreage for Tile Drainage Outlets	4 200	3 500
3. Number Field Checks for Tile Invest. or Designs	87	73
Acreage for Field Checks for Tile Invest. or Designs	7 210	5 610
4. Number Tile Drainage Invest. Pending	240	-
Acreage of Tile Drainage Invest. Pending	-	-
5. Number Soil and Water Table Invest.	7	7
Acreage of Soil and Water Table Invest.	480	175
6. Number Profiles of Tile Drainage Invest.	58	50
Acreage of Profiles of Tile Drain. Invest.	5 060	3 390
7. Number Field Check of District Drains to Provide Tile Outlets	107	105
8. Number Field Check for Depth of Tile Outlets	157	142
9. Number Tile Drainage Designs Completed	42	17
Acreage in Tile Drainage Designs Completed	3 490	1 300
10. Number Contacts with Landowner or Others in Field	700	695
11. Number Contacts with Landowner or others in Office	4 540	4 545
12. Number Metered Tile Effluents	253	249
13. Number Seepage Invest. of IID Canals	4	4
14. Number Test Wells for Proposed Sumps	8	3
15. Number Special Investigations	50	27
16. Number Field Checks of Tile Machine	228	212

CONCRETE LINED CANALS, PIPELINE DRAINS,
TILE DRAINS AND DRAINAGE PUMPS

SUMMARY OF CONCRETE LINED CANALS

Year	Concrete Lined Farm Ditches		Concrete Lining of District Canals						Annual Cumulative	Tots Cumulative		
			For Private Maintenance		For District Maintenance		Cumulative					
	Length (Miles)	Length (Miles)	Length (Miles)	Length (Miles)	Length (Miles)	Length (Miles)	Length (Miles)	Length (Miles)				
1950	15.00	22.00	-	-	-	-	-	-	15.00	22.00		
1951	31.00	53.00	-	-	-	-	-	-	31.00	53.00		
1952	52.00	105.00	-	-	-	-	-	-	52.00	105.00		
1953	42.70	147.70	-	-	-	-	-	-	42.70	147.70		
1954	48.20	195.90	-	-	.80	.80	.80	.80	49.00	196.70		
1955	103.00	298.90	1.15	1.15	.50	.1.30	1.30	1.30	104.65	301.35		
1956	125.60	424.50	4.05	5.20	1.66	2.96	2.96	2.96	131.31	432.66		
1957	128.90	553.40	4.53	9.73	3.15	6.11	6.11	6.11	136.58	569.24		
1958	98.40	651.80	4.97	14.70	3.11	9.22	9.22	9.22	106.48	675.72		
1959	115.70	767.50	7.56	22.26	4.07	13.29	13.29	13.29	127.33	803.05		
1960	122.10	889.60	4.60	26.86	3.62	16.91	16.91	16.91	130.32	933.37		
1961	89.50	979.10	4.41	31.27	10.10	27.01	27.01	27.01	104.01	1 037.38		
1962	93.30	1 072.40	1.60	32.87	17.67	44.68	44.68	44.68	112.57	1 149.95		
1963	118.30	1 190.70	5.74	38.61	27.54	72.22	72.22	72.22	151.48	1 301.53		
1964	110.80	1 301.50	3.53	42.14	50.52	122.74	122.74	122.74	164.85	1 466.38		
1965	80.70	1 382.20	.76	42.90	54.35	177.09	177.09	177.09	135.81	1 602.19		
1966	72.30	1 545.50	.75	43.65	68.24	245.33	245.33	245.33	141.29	1 743.48		
1967	62.90	1 517.40	.40	44.05	60.24	305.57	305.57	305.57	123.54	1 867.02		
1968	67.50	1 584.90	1.02	45.07	51.68	357.25	357.25	357.25	120.20	1 987.22		
1969	73.00	1 657.90	.27	45.34	56.11	413.36	413.36	413.36	129.38	2 116.60		
1970	66.10	1 724.00	.61*	45.95*	38.74*	452.10*	452.10*	452.10*	105.45*	2 222.05*		
1971	63.10**	1 787.10**	.93	46.88	35.85	487.95	487.95	487.95	99.88**	2 321.93**		
1972	61.20	1 848.30	1.21	48.09	36.20	524.15	524.15	524.15	98.61	2 420.54		
1973	71.50	1 919.80	1.11	49.20	29.94	554.09	554.09	554.09	102.55	2 523.09		
1974	94.50	2 014.30	1.00	50.20	31.17	585.26	585.26	585.26	126.67	2 649.76		
1975	56.80	2 071.10	2.44	52.64	38.39	623.65	623.65	623.65	97.63	2 747.39		
1976	68.00	2 139.10	.77	53.41	38.25	661.90	661.90	661.90	107.02	2 854.41		
1977	60.30	2 199.40	.30	53.71	34.63	696.53	696.53	696.53	95.23	2 949.64		
1978	33.40	2 232.80	-	53.71	19.20	715.73	715.73	715.73	52.60	3 002.24		

* Correction 3/22/72

** Correction 1/73

Mileage on District canals shown includes structures

SUMMARY OF CONCRETE LINED CANALS AND FARM DITCHES

Year	Concrete Lined Farm Ditches		Private Maintenance		Concrete Lining of District Canals					
	Miles	To Date	Miles	To Date	I.O. & IID Participation		Total Cost to Others		District Maintenance	
					Miles	To Date	Miles	To Date	Miles	To Date
1950	15.00	22.00	-	-	-	-	-	-	-	-
1951	31.00	53.00	-	-	-	-	-	-	-	-
1952	52.00	105.00	-	-	-	-	-	-	-	-
1953	42.70	147.70	-	-	-	-	-	-	-	-
1954	48.20	195.90	-	-	.80	-	.80	-	.80	.80
1955	103.00	298.90	1.15	1.15	.50	1.30	-	-	.50	1.30
1956	125.60	424.50	4.05	5.20	1.66	2.96	-	-	1.66	2.96
1957	128.90	553.40	4.53	9.73	3.15	6.11	-	-	3.15	6.11
1958	98.40	651.80	4.97	14.70	3.11	9.22	-	-	3.11	9.22
1959	115.70	767.50	7.56	22.26	4.07	13.29	-	-	4.07	13.29
1960	122.10	889.60	4.60	26.86	3.62	16.91	-	-	3.62	16.91
1961	89.50	979.10	4.41	31.27	10.10	27.01	-	-	10.10	27.01
1962	93.30	1,072.40	1.60	32.87	17.67	44.68	-	-	17.67	44.68
1963	118.30	1,190.70	5.74	38.61	27.54	72.22	-	-	27.54	72.22
1964	110.80	1,301.50	3.53	42.14	50.52	122.74	-	-	50.52	122.74
1965	80.70	1,382.20	.76	42.90	52.83	175.57	1.52	1.52	54.35	177.09
1966	72.30	1,454.50	.75	43.65	67.24	242.81	1.00	2.52	68.24	245.33
1967	62.90	1,517.40	.40	44.05	60.24	303.05	-	2.52	60.24	305.57
1968	67.50	1,584.90	1.02	45.07	47.17	350.22	4.51	7.03	51.68	357.25
1969	73.00	1,657.90	.27	45.34	55.10	405.32	1.01	8.04	56.11	413.36
1970	66.10	1,724.00	.61*	45.95*	38.74*	444.06*	-.84	8.04	38.74*	452.10*
1971	63.10**	1,787.10	.93	46.88	35.01	479.07	.84	8.88	35.85	487.95
1972	61.20	1,848.30	1.21	48.09	36.20	515.27	-	8.88	36.20	524.15
1973	71.50	1,919.80	1.11	49.20	29.94	545.21	-	8.88	29.94	554.09
1974	94.50	2,014.30	1.00	50.20	31.17	576.38	-	8.88	31.17	585.26
1975	56.80	2,071.10	2.44	52.64	38.39	614.77	-	8.88	38.39	623.65
1976	68.00	2,139.10	.77	53.41	38.25	653.02	-	8.88	38.25	661.90
1977	60.30	2,199.40	.30	53.71	34.63	687.65	-	8.88	34.63	696.53
1978	33.40	2,232.80	-	53.71	19.20	706.85	-	8.88	19.20	715.73

* Correction 3/22/72

** Correction 1/73

Mileage on District canals shown includes structures

PIPELINE DRAIN INSTALLATIONS
(District O & M)

<u>Year</u>	<u>Miles</u>	<u>Cumulative Length</u>
1962	1.38	22.51
1963	9.74	32.25
1964	5.38	37.63
1965	4.92	42.55
1966	13.64	56.19
1967	7.11	63.30
1968	6.24	69.54
1969	7.37	76.91
1970	3.69	80.06*
1971	2.16	82.22
1972	5.54**	87.76**
1973	1.83	89.59
1974	4.80	94.39
1975	6.47***	100.86***
1976	1.11	101.97
1977	1.36	103.33
1978	.90	104.23

*0.54 of a mile abandoned

**0.48 of a mile is in the total miles, but no additional miles in records as parallel drain.

***0.27 of a mile is in the total miles, but no additional miles in records as parallel drain.

TILE INSTALLED IN IMPERIAL IRRIGATION DISTRICT

<u>Year</u>	<u>Miles of Tile Installed</u>	<u>Cumulative Total Miles Tile Installed</u>	<u>No. Acres Tiled</u>	<u>Cumulative Total No. Acres Tiled</u>
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1929 to 1939, Inclusive

Cumulative Total Miles Installed - 332.77

Total Acres Prior to 1940 --- 12,220

1940	66.84	399.61	4 040	16 240
1941	46.08	445.69	2 880	19 120
1942	37.15	482.84	2 040	21 160
1943	53.24	536.08	3 960	25 120
1944	60.00	596.08	1 880	27 000
1945	55.00	651.08	3 240	30 240
1946	133.25	784.33	5 480	35 720
1947	325.00	1 109.33	17 920	53 640
1948	393.80	1 503.13	17 220	70 860
1949	455.62	1 958.75	21 670	92 530
1950	458.00	2 416.75	22 610	115 140
1951	603.10	3 019.85	22 665	137 805
1952	709.54	3 729.39	23 345	161 150
1953	512.19	4 241.58	16 000	177 150
1954	491.12	4 732.70	14 960	192 110
1955	526.92	5 259.62	15 160	207 270
1956	519.36	5 778.98	13 290	220 560
1957	560.97	6 339.95	12 200	232 760
1958	490.88	6 830.83	10 690	243 450
1959	546.54	7 377.37	9 550	253 000
1960	794.05	8 171.42	15 713	268 713
1961	857.51	9 028.93	17 921	286 634
1962	611.01	9 639.94	11 485	298 119
1963	766.02	10 405.96	10 129	308 248
1964	993.97	11 399.93	12 707	320 955
1965	734.52	12 134.45	7 958	328 913
1966	527.38	12 661.83	6 634	335 547
1967	634.00	13 295.83	6 419	341 966
1968	754.33	14 050.16	6 046	348 012
1969	808.64	14 858.80	6 010	354 022
1970	1 036.61	15 895.41	8 230	362 252
1971	919.34	16 814.75	7 552	369 804
1972	1 019.40	17 834.15	7 311	377 115
1973	1 154.35	18 988.50	8 031	385 146
1974	1 191.96*	20 180.46*	3 734	388 880
1975	1 223.22	21 403.68	6 258	395 138
1976	1 530.67	22 934.35	7 941	403 079
1977	822.31	23 756.66	3 441	406 520
1978	958.32	24 714.98	5 719	412 239

*Correction 6/1/75